

**ABSTRACT**

A method and apparatus for testing and characterizing circuits is provided. In one embodiment, a high-speed interface of a semiconductor component includes high-speed test circuitry. The high-speed test circuitry obviates the need for an external high-speed testing system for testing and characterization. In one embodiment, the high-speed test circuitry includes a test pattern generation circuit, and various differential comparators to compare low bandwidth reference signals with interface signals during testing and characterization. In one embodiment, an interface that includes the test circuitry can test itself or another interface. In one embodiment, a timing reference signal decouples the individual parameters of two interfaces testing each other to avoid any errors introduced by the combination of individual interface circuit parameters, such as receiver parameters and transmitter parameters. The testing can be performed at the wafer stage, at the component stage, and in a system.